

PROCEEDINGS
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A NEW SUBSPECIES OF SANDHILL CRANE FROM
MISSISSIPPI

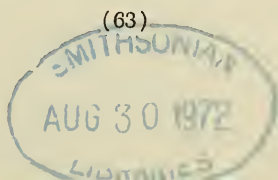
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A very small resident group of sandhill cranes (*Grus canadensis*) is barely surviving in southern Mississippi. This is a remnant of a larger and more extensively distributed population of these cranes which formerly occurred along the Gulf Coastal Plain of Louisiana, Mississippi, and Alabama (Walkinshaw, 1949; Valentine and Noble, 1970).

The former status of these birds is very poorly documented, but it is probable that they always occurred in fairly widely separated pockets of suitable habitat and never in very large numbers. Breeding has been recorded for southern Louisiana by Cooke (1914), Figgins (1923), McIlhenny (1943), and Lowery (1960); for Mississippi by E. A. McIlhenny (1938), Turcotte (1947), Walkinshaw (1949), Valentine (1963), and Valentine and Noble (1970); and for Alabama by Howell (1928) and Imhof (1962).

Apparently the only place where the sandhill crane breeds on the Gulf Coast west of Florida at present is in Mississippi. There are no recent records of occurrence of these birds during the breeding season in other parts of the known former breeding range or elsewhere in that region. However, the Mississippi population has received particular attention in recent years under the stimulus of the endangered species program of the Fish and Wildlife Service. Reports by Valentine (1963) and Valentine and Noble (1970) give informative accounts of the status of these birds. These authors report that the Mississippi sandhill crane population, estimated



as between 38 and 40 birds, is confined to Jackson County, generally between the Pascagoula River on the east and the Jackson-Harrison County line on the west; U.S. Highway 90 on the south and Bluff Creek on the north. The breeding grounds are near Ocean Springs and Fontainebleau and are divided into seven rather distinct nesting areas (Valentine and Noble, 1970).

The nesting habitat is described by Walkinshaw (1949), Valentine (1963), and Valentine and Noble (1970) as wet areas in semiopen pine flats. It would appear that, although savannalike in aspect, breeding areas have more trees than is usually the case with sandhill cranes (Walkinshaw, 1949). In fact, the habitat of these birds is so different from the usual wide open environment of sandhill cranes that Valentine and Noble suggest that this population should be considered a distinct ecotype.

It has been generally assumed that the Gulf Coast breeding sandhill cranes were of the same subspecies as those in Florida, *Grus canadensis pratensis*. However, as Hellmayr and Conover (1942, footnote) point out, the Gulf Coast breeding sandhills have never been critically studied and have been placed with *pratensis* only for "geographical reasons." The fact is they could not have been studied to determine their correct subspecific status since it appears that no adult specimens have ever been preserved (Walkinshaw, 1949, and personal communication).

In the course of the above mentioned endangered species program, eggs were taken beginning in 1965 from the nests of the Mississippi sandhill crane population for the purpose of propagation in captivity. This has resulted in the rearing at the Patuxent Wildlife Research Center, Laurel, Maryland, of eight Mississippi birds to adult plumage stage by 1971. One of these died on 15 September 1971, and became specimen 564841 in the National Museum of Natural History, Smithsonian Institution. Meanwhile, sandhill cranes were also reared from eggs taken in southern Florida, Okefenokee Swamp, Georgia, and Oregon.

Although slight differences were noted among individuals

in the downy stage, as soon as the first of the Mississippi cranes acquired its contour feathers, a color much darker than that of those reared from eggs taken in Florida was apparent. This dark color has been consistent in all others of this population reared subsequently and has been noticed by all persons who have viewed them critically. Subsequent to this discovery, the very dark appearance of the sandhill crane photographed beside its nest in Mississippi and shown in Figure 2, Plate 14, in Walkinshaw's (1949) monograph was noted, and Walkinshaw (personal communication) verified this condition in Mississippi cranes which he had observed.

On 19 October 1970, I made a detailed comparison of seven living, adult plumaged sandhill cranes hatched from eggs taken in Mississippi with an equal number originating in southern Florida, two from Okefenokee Swamp, Georgia, and examples of greater sandhills originating at Malheur National Wildlife Refuge, Oregon. This time of year was selected because all birds were in freshly molted plumage. These birds were intermingled in the same pen and observations were made by walking among them and examining the plumage at close range.

There was no difficulty whatever in distinguishing the Mississippi birds from all others at a glance. Compared with the south Florida and Oregon birds, they were very much darker on back, wings, neck, sides of head and breast. In these respects, the Florida birds were very similar in color to the greater sandhills (*Grus canadensis tabida*) from Oregon and to lesser sandhills (*G. c. canadensis*) taken as migrants in New Mexico. The dark color of the neck and ear patches of the Mississippi birds had the effect of making the white cheeks stand out more distinctly in contrast than was the case in cranes from other regions.

The two Okefenokee Swamp cranes appeared slightly darker than the examples from south Florida but were not nearly as dark as those from Mississippi. The significance of this is that the Okefenokee specimens represent a breeding area very close to the type-locality of *pratensis* restricted by Harper (1942) to Bronson, Levy County, Florida. Thus, the Okefenokee birds almost certainly are representative of the same population

that breeds near the locality in northern Florida where Bartram (1791) described his "Great Savanna Crane" that was the basis of the formal diagnosis of *pratensis* (Meyer, 1794). Since migrant cranes from breeding populations in the central northern United States (*tabida*) are known to winter in northern Florida together with resident birds (Walkinshaw, 1960; Williams, 1970), it might not have been possible to determine which one Bartram was looking at when he provided the basis for the name *pratensis*, if he had not mentioned nesting. However, in the description of his exploration of the "Alachua Savanna" he mentioned seeing these cranes with nests and eggs. This definitely identifies his "Great Savanna Crane" with the breeding population of that area and therefore it seems certain that the name *G. c. pratensis* applies to the resident population of Florida and not the migrant birds from the north.

The differences between the birds originating in south Florida and those from Okefenokee Swamp, viewed side by side in the crane pen, were so slight that it seems justifiable to consider them the same subspecies, *Grus canadensis pratensis*. The seven specimens from Mississippi-taken eggs, however, were quite different, being consistently much darker than the Florida and Okefenokee birds. Also, they were darker than examples of greater sandhill cranes (*tabida*) and lesser sandhill cranes (*canadensis*) living in nearby pens and also specimens of the Canadian sandhill crane (*rowani*) and Cuban sandhill crane (*nesiotes*) in the National Museum of Natural History. The darker coloration considered a distinguishing characteristic of *pratensis* as compared with *tabida* (Peters, 1925) was not obvious with living birds, although it was noted in comparison of museum specimens of Great Basin breeding *tabida* and Florida *pratensis*.

So far, it has not been possible to determine the sex of the living cranes at Patuxent and thus segregate their measurements accordingly. However, comparisons of the range of measurements of the Mississippi birds of both sexes combined with the ranges known for breeding populations of previously described subspecies are indicative of major differences in over-

all size or in proportions. These ranges of measurements (in mm) are as follows.

Mississippi (8 live captive birds hatched from Mississippi eggs). Wing (chord), 470–493; bill (from posterior end of nostril), 82–91; tarsus, 216–258.

Florida, *pratensis* (28 live captive birds hatched from southern Florida eggs). Wing (chord) 451–506; bill (from posterior end of nostril) 82–103; tarsus, 218–274.

Greater, *tabida* (20 live captive birds hatched from Oregon eggs). Wing (chord), 479–550; bill (from posterior end of nostril), 86–111; tarsus, 215–260.

Canadian, *rowani* (10 breeding season specimens, from Walkinshaw, 1965) Wing (chord), 456–524; bill (from posterior end of nostril), 73–88; tarsus, 205–239.

Lesser, *canadensis* (50 breeding season specimens, from Walkinshaw, 1965) Wing (chord), 420–503; bill (from posterior end of nostril), 63–76; tarsus, 162–210.

From comparison of these measurements it would appear that Florida and Mississippi sandhills are quite similar in size and proportions. They both have tarsi as long or longer than greater sandhills from Oregon but are smaller in other dimensions. Measurements of lesser sandhill cranes (*canadensis*) showed them to be smaller in all respects than either Florida or Mississippi birds, particularly in bill and tarsus length. The Canadian sandhill (*rowani*) appears to have a shorter bill and tarsus but a similar or possibly longer wing than the Florida and Mississippi populations. The size of the Cuban subspecies (*nesiotes*), except for a longer bill, is apparently about the same size as the lesser sandhill according to measurements by Todd (1916) and so is definitely smaller than either Florida or Mississippi populations in wing and tarsus.

The difference in the Mississippi breeding population of sandhill cranes from all others of this species warrants its description as a distinct subspecies which may be known as:

***Grus canadensis pulla* new subspecies**

Mississippi Sandhill Crane

Type: Adult ♀ USNM No. 564841 in the National Museum of Natural History. Hatched 15 May 1969, from egg taken 7 May 1969, about

7 miles northwest of Fontainebleau, Jackson County, Mississippi. Reared at Patuxent Wildlife Research Center, Laurel, Maryland, leg band No. 49, wing tag No. 207. Died 15 September 1971, as result of leg injury. Measurements: wing, primaries broken—unmeasurable; bill (from posterior end of nostril to tip), 91 mm; tarsus, 251 mm, middle toe (without claw), 72 mm. Plumage: worn nuptial, just beginning to molt to fresh autumn; back (worn feathers) sepia to clove brown, (fresh feathers) iron gray to dark mouse gray; breast (worn feathers) brownish olive, (fresh feathers) deep mouse gray; dorsal side of neck (worn feathers) deep neutral gray.

Subspecific characters: Similar in size to *G. c. pratensis* that breeds from southern Georgia south to southern Florida but colored portions of plumage much darker throughout. It is the darkest colored of all populations of *Grus canadensis*. From the greater sandhill crane, *G. c. tabida*, breeding in Oregon, Idaho, and Michigan, it differs on the basis of both smaller size (except tarsus) and darker color. From the Arctic breeding lesser sandhill crane, *G. c. canadensis*, the new Mississippi subspecies can be distinguished by larger size in all dimensions and darker color. From the breeding sandhills of the boreal forest region of western Canada, *G. c. rowani*, Mississippi birds can be distinguished particularly by longer tarsi and darker color. From the Cuban sandhill crane, *G. c. nesiotis*, they differ in larger size in all respects except bill length and in having darker colored plumage.

Geographical distribution: Jackson County, Mississippi, near Ocean Springs and Fontainebleau between the Pascagoula River on the east and Jackson-Harrison County line on the west; U.S. Highway 90 on the south and Bluff Creek on the north.

Examples of G. c. pulla examined: Eight in adult plumage at Patuxent Wildlife Research Center, Laurel, Maryland, hatched from eggs taken in Jackson County, Mississippi, by Jacob M. Valentine, Jr.: wing tag No. 86, hatched 3 May 1966; No. 110 hatched 3 May 1965; No. 87, hatched 16 May 1966; No. 184, hatched 26 May 1967; No. 215, hatched 4 June 1969; No. 212, hatched 16 May 1969; No. 207 (type specimen USNM 564841) hatched 15 May 1969; No. 341, hatched 30 May 1970.

Immature ♀, USNM 531663, hatched 18 May 1967, from egg taken in Jackson County, Mississippi, by Jacob M. Valentine, Jr. Died Patuxent Wildlife Research Center, Laurel, Maryland, 7 January 1968.

Downy young, sex ?, USNM 530210, hatched from egg taken 4 May 1966, in Jackson County, Mississippi, by Jacob M. Valentine, Jr., died in aviary of John Lynch, Lafayette, Louisiana, 6 July 1966.

Downy young, ♀, USNM 532029, hatched from egg taken 30 May 1968, in Jackson County, Mississippi, by Jacob M. Valentine, Jr.; died at Patuxent Wildlife Research Center, Laurel, Maryland, 12 June 1968.

Downy young, ♂?, Museum of Zoology, University of Michigan 104976, collected Ocean Springs, Mississippi, 20 April 1940, on day of hatching, by Lawrence Walkinshaw; weight 93.4 grams.

Downy young, sex?, Museum of Zoology, Louisiana State University, 2009, collected "Lake Misere, Cameron Parish, Louisiana," 7 April 1938, by E. A. McIlhenny, 3 days old. A note on the label says: "this specimen almost certainly came from southern Mississippi where E. A. McIlhenny studied nesting sandhill cranes in the spring of 1938. See Auk 55, 1938: 598-602 - CHL."

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